

TD62164AP, TD62164AF

4CH HIGH-CURRENT DARLINGTON SINK DRIVER

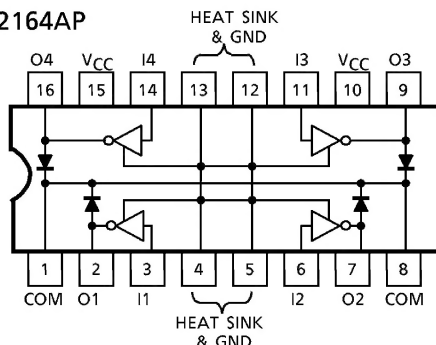
The TD62164AP and TD62164AF are high-voltage, high-current darlington drivers comprised of four NPN darlington pairs. All units feature integral clamp diodes for switching inductive loads. Applications include relay, hammer, lamp and stepping motor drivers.

FEATURES

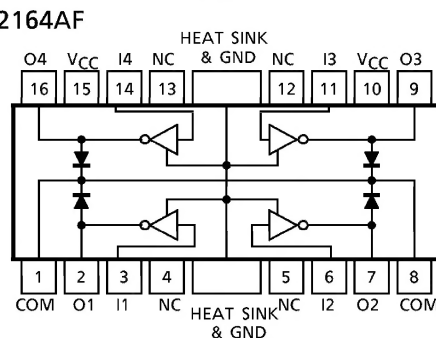
- Output current (single output) 700mA (Max.)
- High sustaining voltage output 50V (Min.)
- Output clamp diodes
- Input compatible with TTL and 5V CMOS
- GND and SUB terminal heat sink
- Package type-AP : DIP-16pin
- Package type-AF : PFP-16pin

PIN CONNECTION (TOP VIEW)

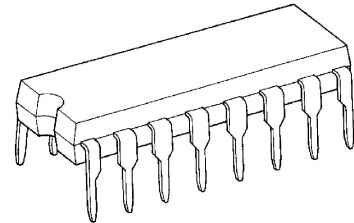
TD62164AP



TD62164AF

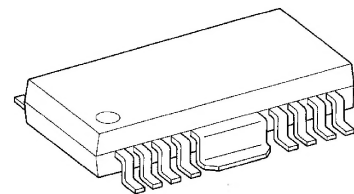


TD62164AP



DIP16-P-300-2.54A

TD62164AF

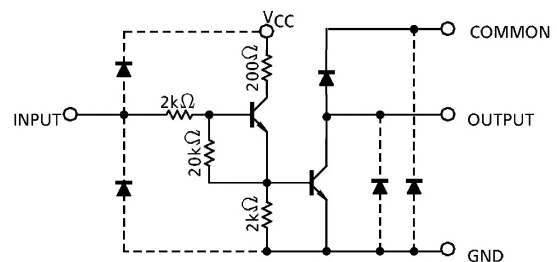


HSOP16-P-300-1.00

Weight

DIP16-P-300-2.54A : 1.11g (Typ.)
HSOP16-P-300-1.00 : 0.50g (Typ.)

SCHEMATICS (EACH DRIVER)



(Note) The input and output parasitic diodes cannot be used as clamp diodes.

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MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	– 0.5~17	V
Output Sustaining Voltage		V _{CE (SUS)}	– 0.5~50	V
Output Current		I _{OUT}	700	mA / ch
Input Current		I _{IN}	50	mA
Input Voltage		V _{IN}	17	V
Clamp Diode Reverse Voltage		V _R	50	V
Clamp Diode Forward Current		I _F	700	mA
Power Dissipation	AP	P _D	1.47 / 2.7 (Note 1)	W
	AF		0.9 / 1.4 (Note 2)	
Operating Temperature		T _{opr}	– 40~85	°C
Storage Temperature		T _{stg}	– 55~150	°C

(Note 1) On Glass Epoxy (50×50×1.6mm Cu 50%)

(Note 2) On Glass Epoxy (60×60×1.6mm Cu 30%)

RECOMMENDED OPERATING CONDITIONS (Ta = – 40~85°C)

CHARACTERISTIC		SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
Supply Voltage		V _{CC}			4.5	—	5.5	V
Output Sustaining Voltage		V _{CE (SUS)}			0	—	50	V
Output Current	AP	I _{OUT}	DC 1 Circuit, Ta = 25°C		0	—	570	mA / ch
			T _{pw} = 25ms 4 Circuit Ta = 85°C T _j = 120°C	Duty = 10%	0	—	570	
	Duty = 50%			0	—	570		
	AF			Duty = 10%	0	—	570	
			Duty = 50%	0	—	480		
Input Voltage		V _{IN}			0	—	15	V
	Output On	V _{IN (ON)}	I _{OUT} = 500mA	h _{FE} = 150	10.0	—	15	V
		h _{FE} = 2000		2.4	—	15		
	Output Off	V _{IN (OFF)}			0	—	0.4	
Input Current		I _{IN}			0	—	20	mA
Clamp Diode Reverse Voltage		V _R			—	—	50	V
Clamp Diode Forward Current		I _F			—	—	500	mA
Power Dissipation	AP	P _D	Ta = 85°C (Note 1)		—	—	1.4	W
	AF		Ta = 85°C (Note 2)		—	—	0.7	

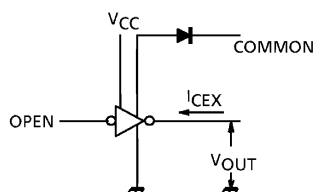
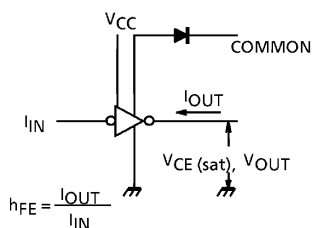
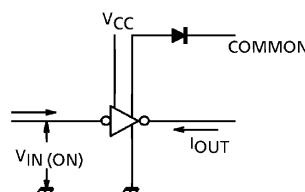
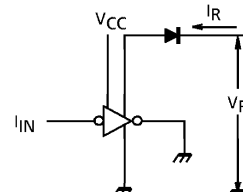
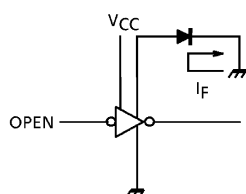
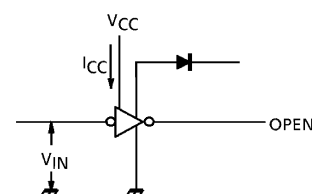
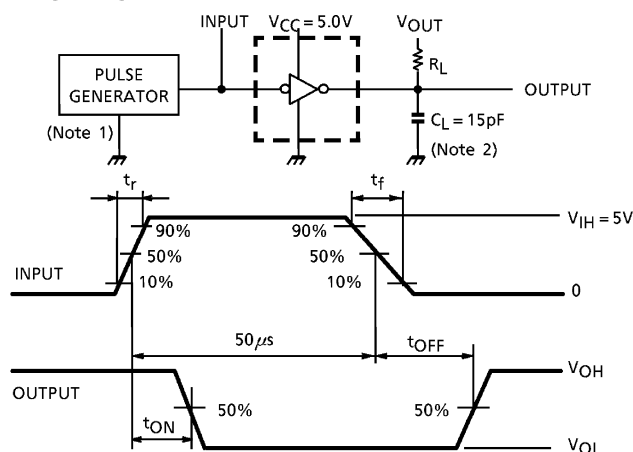
(Note 1) On Glass Epoxy (50×50×1.6mm Cu 50%)

(Note 2) On Glass Epoxy (60×30×1.6mm Cu 30%)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Output Leakage Current	I_{CEX}	1	$V_{CE} = 50V, T_a = 25^\circ C$ $V_{CE} = 50V, T_a = 85^\circ C$	—	—	50 100	μA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	2	$I_{OUT} = 500mA, V_{CC} = 5V$ $I_{OUT} = 200mA, V_{CC} = 5V$	—	—	0.8 0.45	V
DC Current Transfer Ratio	h_{FE}	2	$V_{CE} = 2V, I_{OUT} = 500mA$	2000	—	—	
Input Voltage (Output On)	$V_{IN(ON)}$	3	$I_{OUT} = 500mA, h_{FE} = 150$ $I_{OUT} = 500mA, h_{FE} = 2000$	7.0 1.8	—	10.0 2.4	V
Clamp Diode Reverse Current	I_R	4	$V_R = 50V, T_a = 25^\circ C$ $V_R = 50V, T_a = 85^\circ C$	—	—	50 100	μA
Clamp Diode Forward Voltage	V_F	5	$I_F = 500mA$	—	—	2.0	V
Supply Current	Output On	6	$V_{CC} = 5.5V, V_{IN} = 2.4V$	—	35	40	mA / ch
	Output Off		$V_{CC} = 5.5V, V_{IN} = 0.4V$	—	—	10	μA
Input Capacitance	C_{IN}	—	$V_{IN} = 0, f = 1MHz$	—	15	—	pF
Turn-On Delay	t_{ON}	7	$V_{OUT} = 50V, R_L = 72\Omega$	—	0.2	0.4	μs
Turn-Off Delay	t_{OFF}		$V_{CC} = 5.0V, C_L = 15pF$	—	4.0	8.0	

TEST CIRCUIT

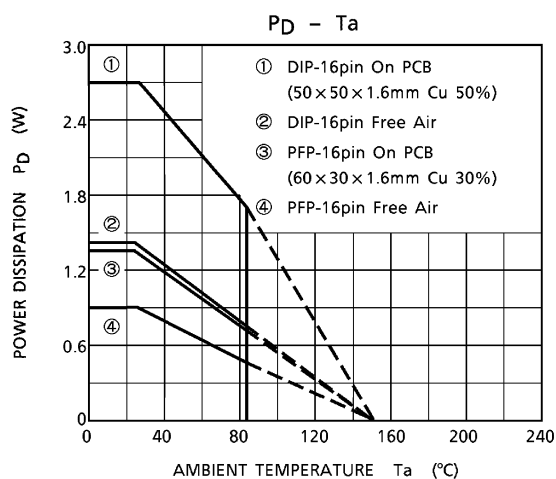
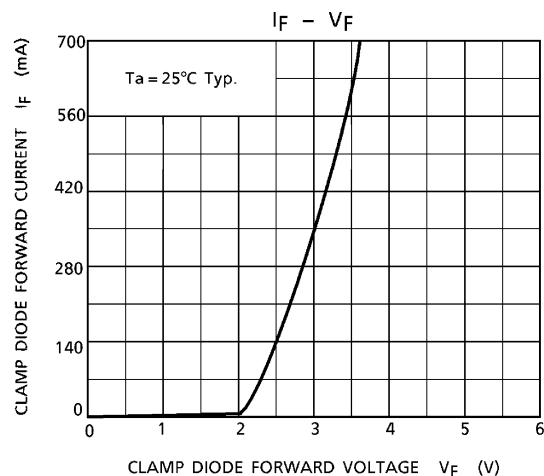
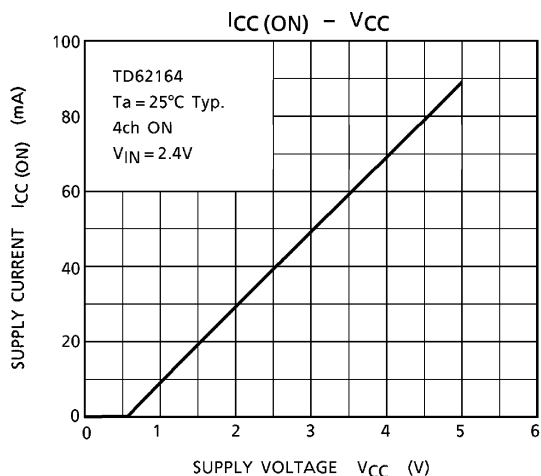
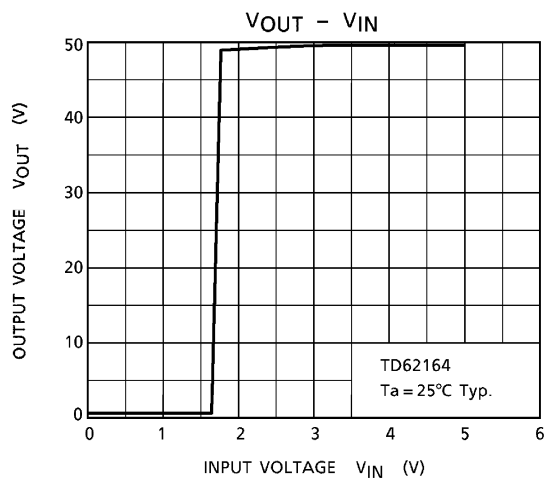
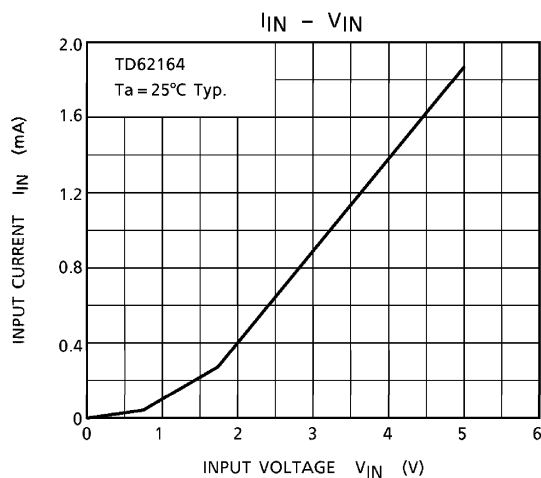
1. I_{CEX} 2. $h_{FE}, V_{CE(sat)}$ 3. $V_{IN(ON)}$ 4. I_R 5. V_F 6. $I_{CC(ON)}, I_{CC(OFF)}$ 7. t_{ON}, t_{OFF} 

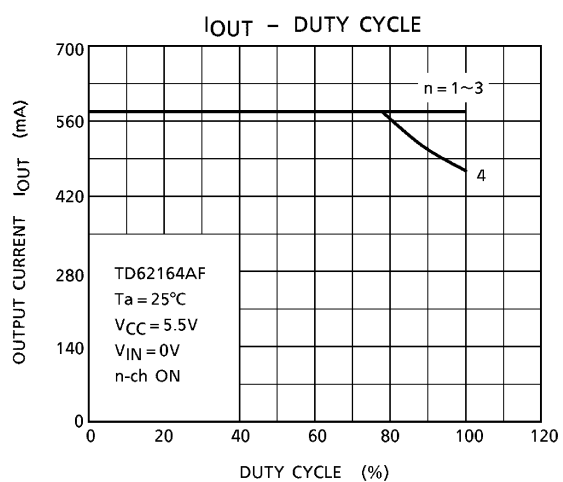
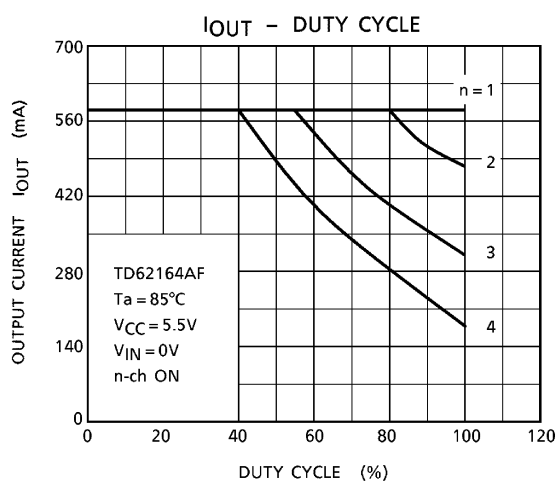
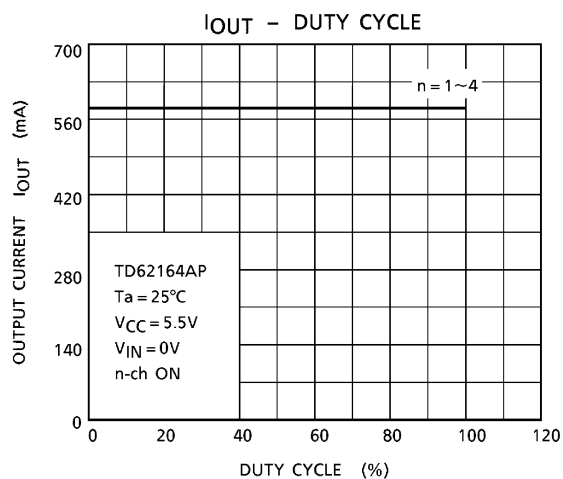
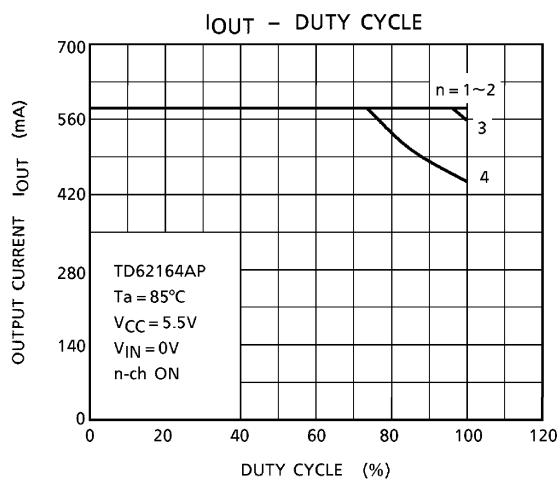
(Note 1) Pulse Width 50μs, Duty Cycle 10%

Output Impedance 50Ω, $t_r \leq 5ns$, $t_f \leq 10ns$ (Note 2) C_L includes probe and jig capacitance.

PRECAUTIONS for USING

Utmost care is necessary in the design of the output line, V_{CC} , COMMON and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

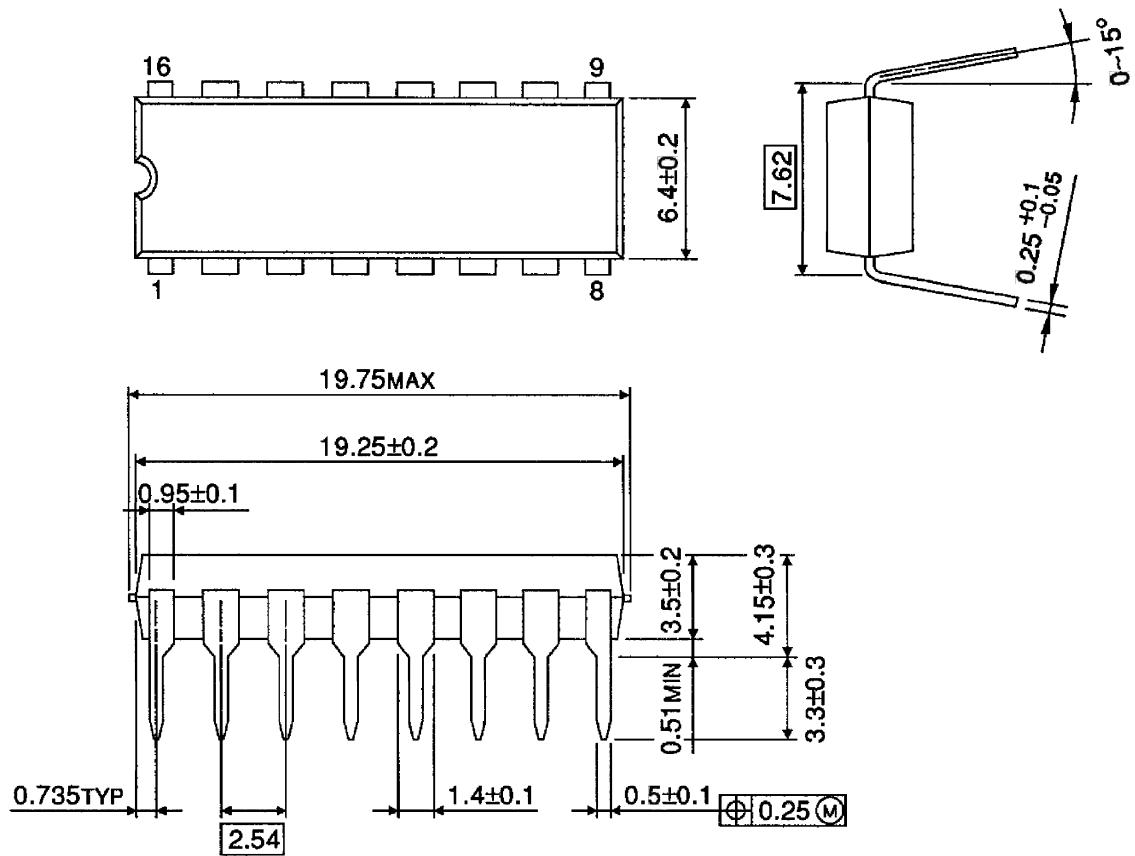




OUTLINE DRAWING

DIP16-P-300-2.54A

Unit : mm

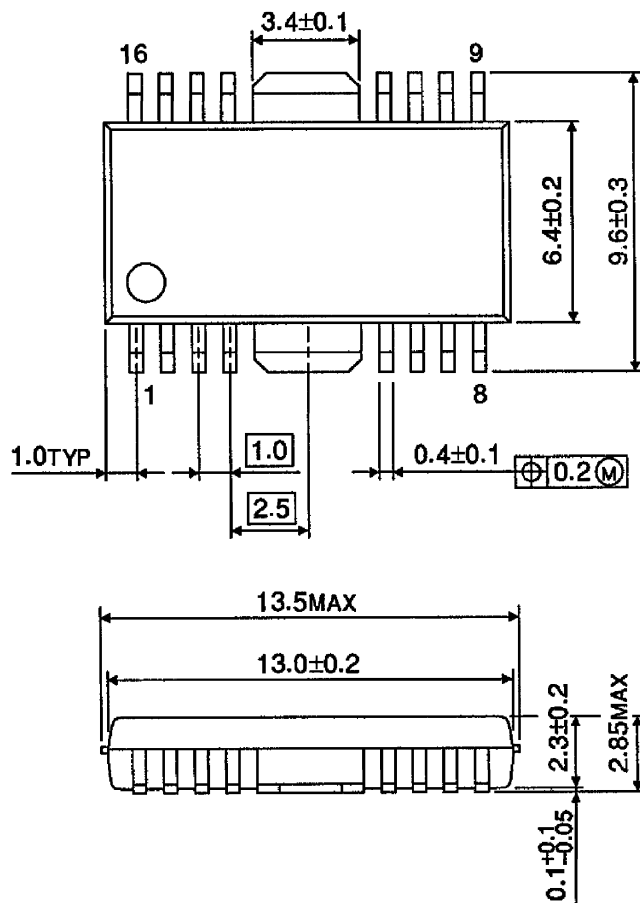


Weight : 1.11g (Typ.)

OUTLINE DRAWING

HSOP16-P-300-1.00

Unit : mm



Weight : 0.50g (Typ.)

